In the claims:

1. (original) An ECG-signal processor comprising:

a first input for receiving a measured motion signal indicative of motion of a CPR recipient's chest during the administration of CPR by a rescuer to the CPR recipient;

a second input for receiving a measured ECG signal during the administration of CPR;

a CPR-induced artifact identifier for receiving said measured motion signal and said measured ECG signal and identifying a CPR-induced artifact contained in said measured ECG signal; and

a CPR-induced artifact remover for producing a processed ECG signal by removing said CPR-induced artifact from said measured ECG signal.

2. (original) The ECG-signal processor of claim 1 wherein the CPR-induced artifact identifier is non-linear.

3. (original) The ECG signal processor according to claim 1, wherein said CPR-induced artifact identifier comprises a system identifier for identifying an estimated linear system $\tilde{h}$.

4. (original) The ECG signal processor of claim 3 wherein $\tilde{h}$ is non-linear.

5. (canceled)

6. (canceled)

7. (original) An ECG signal processor for processing a measured ECG signal from a patient undergoing CPR, said patient having a chest, comprising:

a CPR-induced artifact identifier for receiving a first input and a second input, wherein said first input comprises a signal indicative of a CPR induced motion of the chest and wherein said second input comprises the measured ECG signal, and wherein the CPR-induced artifact identifier produces an output comprising an estimated CPR-induced artifact signal; and

a signal adder for receiving said output and for receiving the second input, wherein said signal adder combines the output and the second input to produce an estimated true ECG signal.

8. (original) The ECG signal processor of claim 7 wherein the artifact identifier is non-linear.

9. (original) An ECG signal processor for processing a measured ECG signal from a patient undergoing CPR, said patient having a chest, comprising:

a first fast Fourier transform means for receiving a signal indicative of a CPR induced motion of the chest, and wherein the first fast Fourier transform means produces a frequency domain of said signal indicative of a CPR induced motion of the chest;

a second fast Fourier transform means for receiving the measured ECG signal, and wherein the second fast Fourier transform means produces a frequency domain of said measured ECG signal;

an autospectrum calculator for receiving the frequency domain of the signal indicative of the CPR induced motion of the chest, wherein the autospectrum calculator produces an autospectrum of the signal indicative of the CPR induced motion of the chest;

a cross-spectrum calculator for receiving the frequency domain of the signal indicative of the CPR induced motion of the chest and the frequency domain of the measured ECG signal, wherein the cross-spectrum calculator produces a cross-spectrum of the signal indicative of the CPR induced motion of the chest and the measured ECG signal;

a complex divider for receiving the autospectrum of the signal indicative of the CPR induced motion of the chest and the cross-spectrum of the signal indicative of the CPR induced motion of the chest and the measured ECG signal, said complex divider producing a frequency domain system transfer function signal by dividing the cross-spectrum of the signal indicative of the CPR induced motion of the chest and the measured ECG signal by the autospectrum of the signal indicative of the CPR induced motion of the chest;

an inverse fast Fourier transform means for receiving the frequency domain system transfer function signal, wherein the inverse fast Fourier transform means produces a time domain transform function signal;

a microprocessor for receiving and processing the time domain transform function signal and the signal indicative of the CPR induced motion of the chest, wherein the microprocessor produces an estimated artifact signal; and

a signal adder for receiving the estimated artifact signal and the measured ECG signal, wherein said signal adder combines the estimated artifact signal and the measured ECG signal to produce an estimated true ECG signal.

10. (original) The signal processor of claim 9 where the system transfer function signal is a linear system transfer function signal.

11. (original) The signal processor of claim 9 where the system transfer function signal is a non-linear system transfer function signal.

12. (original) The ECG signal processor of claim 9 wherein the signal indicative of a CPR induced motion of the chest comprises an output signal of an accelerometer, said accelerometer being operatively connected to the processor and to the chest of the patient.

13. (original) An ECG signal processor for processing a measured ECG signal from a patient undergoing CPR, said patient having a chest, comprising:

a means to perform recursive least squares analysis on a first input and a second input, wherein the first input comprises a signal indicative of a CPR induced motion of the chest and wherein said second input comprises the measured ECG signal;

wherein the means to perform recursive least squares analysis produces an estimated true ECG signal.

14. (original) The ECG signal processor of claim 13 wherein the signal indicative of a CPR induced motion of the chest comprises an output signal of an accelerometer, said accelerometer being operatively connected to the processor and to the chest of the patient.

15.(canceled)

16. (original) An ECG signal processor for processing a measured ECG signal from a patient undergoing CPR comprising:

a CPR-induced artifact identifier for receiving a first input and a second input, wherein said first input comprises a signal indicative of a plurality of motions of the patient

and wherein said second input comprises the measured ECG signal, and wherein the CPR-induced artifact identifier produces an output comprising an estimated CPR-induced artifact signal; and

a signal adder for receiving said output and for receiving the second input, wherein said signal adder combines the output and the second input to produce an estimated true ECG signal.

17. (original) An ECG signal processor for processing a measured ECG signal from a patient undergoing CPR comprising:

a first fast Fourier transform means for receiving a signal indicative of a plurality of motions of the patient, and wherein the first fast Fourier transform means produces a frequency domain of said signal indicative of a plurality of motions of the patient;

a second fast Fourier transform means for receiving the measured ECG signal, and wherein the second fast Fourier transform means produces a frequency domain of said measured ECG signal;

an autospectrum calculator for receiving the frequency domain of the signal indicative of the plurality of motions of the patient, wherein the autospectrum calculator produces an autospectrum of the signal indicative of the plurality of motions of the patient;

a cross-spectrum calculator for receiving the frequency domain of the signal indicative of the plurality of motions of the patient and the frequency domain of the measured ECG signal, wherein the cross-spectrum calculator produces a cross-spectrum of the signal indicative of the plurality of motions of the patient and the measured ECG signal;

a complex divider for receiving the autospectrum of the signal indicative of the plurality of motions of the patient and the cross-spectrum of the signal indicative of the plurality of motions of the patient and the measured ECG signal, said complex divider producing a frequency domain system transfer function signal by dividing the cross-spectrum of the signal indicative of the plurality of motions of the patient and the measured ECG signal by the autospectrum of the signal indicative of the plurality of motions of the patient;

an inverse fast Fourier transform means for receiving the frequency domain system transfer function signal, wherein the inverse fast Fourier transform means produces a time domain transform function signal;

a microprocessor for receiving and processing the time domain transform function signal and the signal indicative of the plurality of motions of the patient, wherein the microprocessor produces an estimated artifact signal; and

a signal adder for receiving the estimated artifact signal and the measured ECG signal, wherein said signal adder combines the estimated artifact signal and the measured ECG signal to produce an estimated true ECG signal.

18. (original) An ECG signal processor for processing a measured ECG signal from a patient undergoing CPR comprising:

a means to perform recursive least squares analysis on a first input and a second input, wherein the first input comprises a signal indicative of a plurality of motions of the patient and wherein said second input comprises the measured ECG signal;

wherein the means to perform recursive least squares analysis produces an estimated true ECG signal.

19. (canceled)

20. (original) An ECG signal processor for processing a measured ECG signal from a patient undergoing CPR comprising:

a CPR-induced artifact identifier for receiving a first input and a second input, wherein said first input comprises at least one signal indicative of a CPR induced artifact and wherein said second input comprises the measured ECG signal, and wherein the CPR-induced artifact identifier produces an output comprising an estimated CPR-induced artifact signal; and

a signal adder for receiving said output and for receiving the second input, wherein said signal adder combines the output and the second input to produce an estimated true ECG signal.

21. (original) An ECG signal processor for processing a measured ECG signal from a patient undergoing CPR comprising:

a first fast Fourier transform means for receiving at least one signal indicative of a CPR induced artifact, and wherein the first fast Fourier transform means produces a frequency domain of said at least one signal indicative of a CPR induced artifact;

a second fast Fourier transform means for receiving the measured ECG signal, and wherein the second fast Fourier transform means produces a frequency domain of said measured ECG signal;

an autospectrum calculator for receiving the frequency domain of the at least one signal indicative of the CPR induced artifact, wherein the autospectrum calculator produces an autospectrum of the at least one signal indicative of the CPR induced artifact;

a cross-spectrum calculator for receiving the frequency domain of the at least one signal indicative of the CPR induced artifact and the frequency domain of the measured ECG signal, wherein the cross-spectrum calculator produces a cross-spectrum of the at least one signal indicative of the CPR induced artifact and the measured ECG signal;

a complex divider for receiving the autospectrum of the at least one signal indicative of the CPR induced artifact and the cross-spectrum of the at least one signal indicative of the CPR induced artifact and the measured ECG signal, said complex divider producing a frequency domain system transfer function signal by dividing the cross-spectrum of the at least signal indicative of the CPR induced artifact and the measured ECG signal by the autospectrum of the at least one signal indicative of the CPR induced artifact;

an inverse fast Fourier transform means for receiving the frequency domain system transfer function signal, wherein the inverse fast Fourier transform means produces a time domain transform function signal;

a microprocessor for receiving and processing the time domain transform function signal and the at least one signal indicative of the CPR induced artifact, wherein the microprocessor produces an estimated artifact signal; and

a signal adder for receiving the estimated artifact signal and the measured ECG signal, wherein said signal adder combines the estimated artifact signal and the measured ECG signal to produce an estimated true ECG signal.

22. (original) An ECG signal processor for processing a measured ECG signal from a patient undergoing CPR comprising:

a means to perform recursive least squares analysis on a first input and a second input, wherein the first input

comprises at least one signal indicative of a CPR induced artifact and wherein said second input comprises the measured ECG signal;

wherein the means to perform recursive least squares analysis produces an estimated true ECG signal.

23. (original) An ECG signal processor for processing a measured ECG signal from a patient undergoing CPR, said patient having a chest, comprising:

a processor for receiving a first input and a second input, wherein said first input comprises an output signal of an accelerometer, said accelerometer being operatively connected to the processor and to the chest of the patient such that the output signal of the accelerometer indicates a CPR induced motion of the chest;

wherein said second input comprises the measured ECG signal;

wherein the processor processes the first input and the second input to produce an estimated true ECG signal.

24. (currently amended) A system for facilitating the effective administration of CPR, said system comprising:

an accelerometer for producing an acceleration signal indicative of the displacement of a chest of a patient;

an ECG sensor for sensing, during compressions, a measured ECG signal of the patient;

a processor operatively connected to the accelerometer and to the ECG sensor, said processor processing the acceleration signal and the measured ECG signal, wherein the processor produces an output comprising an estimated true ECG signal;

a signaling mechanism, operably connected to the microprocessor, for indicating when the displacement of the chest is within a ~~desire~~ desired range; and

a signaling mechanism, operably connected to the microprocessor, for indicating the estimated true ECG signal of the patient.

25. (original) The system of claim 24 further comprising a tilt compensator comprising a tilt sensor mechanism for outputting a tilt compensation signal indicative of the extent of tilt of the accelerometer.

26. (original) The system of claim 24 wherein the processor processes the acceleration signal and the measured ECG signal by recursive least squares analysis.

27. (original) The system of claim 24 wherein the processor processes the acceleration signal and the measured ECG signal by means of a system identifier, $\tilde{h}$.

28. (original) An ECG signal processing method comprising the steps of:

receiving a measured motion signal indicative of motion of a CPR recipient's chest during the administration of CPR via a rescuer to the CPR recipient;

receiving a measured ECG signal during the administration of CPR;

utilizing said measured motion signal and said measured ECG signal to identify a CPR-induced artifact contained in said measured ECG signal; and

producing a processed ECG signal by removing said CPR-induced artifact from said measured ECG signal.

29. (original) The ECG signal processing method according to claim 28, wherein said CPR induced artifact identification comprises identifying an estimated linear system $\tilde{h}$.

30. (original) A method of calculating an estimated true ECG signal from a patient undergoing CPR comprising the steps of:

identifying an estimated CPR-induced artifact signal; and

combining the estimated CPR-induced artifact signal and a measured ECG signal to produce the estimated true ECG signal.

31. (canceled)

32. (original) A method of calculating an estimated true ECG signal from a patient undergoing CPR, said patient having a chest, comprising the steps of:

providing a first input to a CPR-induced artifact identifier, said first input comprising a signal indicative of a CPR induced motion of the chest;

providing a second input to the CPR-induced artifact identifier, said second input comprising a measured ECG signal;

processing the first and second inputs with the CPR-induced artifact identifier to produce an estimated CPR-induced artifact signal;

providing the estimated CPR-induced artifact signal to a signal adder; and

combining the estimated CPR-induced artifact signal and the second input to produce an estimated true ECG signal.

33. (original) The method of claim 32 wherein the signal indicative of a CPR induced motion of the chest comprises an output signal of an accelerometer, said accelerometer being operatively connected to the processor and to the chest of the patient.

34. (original) A method of calculating an estimated true ECG signal from a patient undergoing CPR, said patient having a chest, comprising the steps of:

providing a first input to a first fast Fourier transform means, said first input comprising a signal indicative of a CPR induced motion of the chest;

providing a second input to a second fast Fourier transform means, said second input comprising a measured ECG signal;

performing a fast Fourier transform on the first input to produce a frequency domain of the signal indicative of the CPR induced motion of the chest;

performing a fast Fourier transform on the second input to produce a frequency domain of the measured ECG signal;

providing the frequency domain of the signal indicative of the CPR induced motion of the chest to an autospectrum calculator;

providing the frequency domain of the signal indicative of the CPR induced motion of the chest and the frequency domain of the measured ECG signal to a cross-spectrum calculator;

calculating an autospectrum of the frequency domain of the signal indicative of the CPR induced motion of the chest with the autospectrum calculator;

calculating a cross spectrum of the frequency domain of the signal indicative of the CPR induced motion of the chest and the frequency domain of the measured ECG signal with the cross spectrum calculator;

providing the cross-spectrum to the numerator of a complex divider and the autospectrum to the denominator of said complex divider;

dividing the cross-spectrum by the autospectrum with the complex divider to produce a frequency domain system transfer function signal;

providing the frequency domain system transfer function signal to an inverse fast Fourier transform means;

calculating a time domain system transfer function signal with the inverse fast Fourier transform means;

providing the time domain system transfer function signal and the signal indicative of the CPR induced motion of the chest to a microprocessor;

processing the time domain system transfer function signal and the signal indicative of the CPR induced motion of the chest with the microprocessor to produce a predicted artifact signal;

providing the predicted artifact signal and the measured ECG signal to a signal adder; and

combining the predicted artifact signal and the measured ECG signal with the signal adder to produce an estimated true ECG signal.

35. (original) The method of claim 34 wherein the system transfer function signal is a linear system transfer function signal.

36. (original) The method of claim 34 wherein the system transfer function signal is a non-linear system transfer function signal.

37. (original) The method of claim 34 wherein the signal indicative of a CPR induced motion of the chest comprises an output signal of an accelerometer, said accelerometer being operatively connected to the processor and to the chest of the patient.

38. (original) A method of calculating an estimated true ECG signal from a patient undergoing CPR, said patient having a chest, comprising the steps of:

performing recursive least squares analysis upon a first input and a second input to produce the estimated true ECG signal;

wherein said first input comprises a signal indicative of a CPR induced motion of the chest and said second input comprises a measured ECG signal.

39. (original) The method of claim 38 wherein the signal indicative of a CPR induced motion of the chest comprises an output signal of an accelerometer, said accelerometer being operatively connected to the processor and to the chest of the patient.

40. (original) A method of calculating an estimated true ECG signal from a patient undergoing CPR, said patient having a chest, comprising the steps of:

providing a first input to a processor capable of performing recursive least squares analysis, said first input comprising a signal indicative of a CPR induced motion of the chest;

providing a second input to the processor, said second input comprising a measured ECG signal; and

performing recursive least squares analysis upon the first and second inputs with the processor to produce the estimated true ECG signal.